



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/339,247	06/24/1999	MIN-CHEOL HONG	0630-0935P	2364

2292 7590 10/03/2002

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

WORKU, NEGUSSIE

ART UNIT	PAPER NUMBER
----------	--------------

2624

DATE MAILED: 10/03/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/339,247

Applicant(s)

HONG, MIN-CHEOL

Examiner

Negussie Worku

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 June 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,8 and 14 is/are rejected.
- 7) ☒ Claim(s) 3,4,6 and 9-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2624

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 1-2, 5, and 7-8, are rejected under 35 U.S.C. 102(e) as being anticipated by Karidi (USP 6,222,641).

With respect to claim 1, Karidi discloses a method for restoring a compressed image of an image processing system, (as shown in fig 1) comprising: a step for defining a smoothing functional (110 of fig 3) having a smoothing degree of an image, see (col.4, lines 29-35) and reliability for an original image (original image is inputted by scanner 13 of fig 2) by pixels having an identical property in image block units (20 of fig 5); and a step for computing (in block 520 of fig 7, the restored image data is computed) a restored image (510 of fig 7) by performing a gradient operation on the smoothing functional in regard to the original image, see (col.4, lines 25-30).

Art Unit: 2624

With respect to claim 2, Karidi discloses the method (as shown in fig 6) wherein the step for defining the smoothing functional (110 of fig 3) divides the pixels according to their position, horizontal direction vertical direction see (fig 5) and smoothing variation in a temporal section, see (col.2, lines 42-45).

With respect to claim 5, Karidi discloses the method (as shown in fig 3) wherein the step for computing the restored image (the image is computed in unit 20 of fig 6), comprises a step for approximating the regularizaon parameter by applying a set theoretic, see (col.1, lines 63-66), and it is presumed that the quantization variables of the DCT region are regular in each macro block, and also presumed that the DCT quantization errors have the Gaussain distribution property in the spatial section.

With respect to claim 7, Karidi discloses the method wherein a local minimizer of the smoothing functional is a global minimizer, see (col.2, lines 43-48).

With respect to claim 8, Karidi discloses the method (as shown in fig 1) wherein the regularization parameter indicates a ratio of a smoothing degree (110 of fig 3) of the image and reliability for the original image, see (col.4, lines 25-35).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 2624

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4. Claim 14, is rejected under 35 U.S.C. 102(e) as being anticipated by Boon (USP 6,360,014).

With respect to claim 14. Boon discloses an apparatus (as shown in fig 1) for restoring a compressed image, step (301 of fig 3) of an image processing system, comprising: a decoder (100 of fig 1) for decoding a coded image signal, see( col.5, 35-40) and for outputting information of the restored image, see (step 511 of fig 5) such as the decoded image, (103 of fig 1), a quantization variable, (fig 8b) see (col.8, line 10-13), a macro block type, see (col. 7, line 58) and a motion vector, (114 of fig 1), see (col.5, lines 35-45); and a post processing unit (105 of fig 1) for including the information of the restored image inputted from the image decoder, (103 of fig 1) for defining a smoothing functional including a smoothing degree of the image and reliability of an original image by pixels having an identical property in image block unit, (705 and 706 of fig 7) and for performing a gradient operation on the smoothing functional in regard to the original image the smoothing functional including a regularization parameter having weight of reliability for the original image.

Art Unit: 2624

***Objected Subject Matter***

5. Claims 3-4, 6, 9-13, are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claims 3-4, the prior art does not show or disclose or suggest wherein the smoothing functional  $M(f)$  comprises a sum of a smoothing functional  $MVB(f)$  for pixels positioned at the boundary of a block in a vertical direction, a smoothing functional  $MVW(f)$  for pixels positioned inside the block in a horizontal direction, a smoothing functional  $MHB(f)$  for pixels positioned at the boundary of a block in a horizontal direction, a smoothing functional  $MHW(f)$  for pixels positioned inside the block in a horizontal direction, and a smoothing functional  $MT(f)$  for pixels moved and compensated in the temporal section, "f" indicating the original image.

With respect to claim 6, the prior art does not show or teach and doesn't disclose or suggest wherein the regularization parameters are approximated as  $Q2P(M,N)$  indicating a quantization variable of a macro block including an  $(m, n)$ th pixel of a two-dimensional image.

With respect to claim 9-13, the prior art doesn't show, disclose or suggest a step for computing an iterative solution in regard to a restored image, after computing the restored image.

Art Unit: 2624

6. Any inquiry concerning this communication or earlier communication from Examiner should be directed to whose telephone number is (703) 305 5441.

The Examiner can normally be reached on M-F, 9 am - 6 pm if attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, David Moore, can be reached on (703) 308-7452.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314, and any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
JEROME GRANT II  
PRIMARY EXAMINER

*Negussie Worku*



09/ 25/ 02